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Test 1784: Case IH STX 440/Case IH STX 450/ New Holland TJ 450 Diesel

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NEBRASKA OECD TRACTOR TEST 1784 - SUMMARY 336
CASE IH STX 440 DIESEL
ALSO CASE IH STX 450 DIESEL
ALSO NEW HOLLAND TJ 450 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1001 rpm)					
400.64 *(298.76)*	2000	22.12 *(83.73)*	0.387 *(0.236)*	18.11 *(3.57)*	
Maximum Power (2 Hours)					
454.23 *(338.72)*	1700	22.80 *(86.30)*	0.352 *(0.214)*	19.92 *(3.92)*	
VARYING POWER AND FUEL CONSUMPTION					
400.64 *(298.76)*	2000	22.12 *(83.73)*	0.387 *(0.236)*	18.11 *(3.57)*	Air temperature
347.69 *(259.27)*	2044	20.09 *(76.06)*	0.406 *(0.247)*	17.30 *(3.41)*	74°F *(23°C)*
264.58 *(197.30)*	2071	16.42 *(62.15)*	0.435 *(0.265)*	16.12 *(3.17)*	Relative humidity
178.63 *(133.21)*	2098	12.78 *(48.39)*	0.502 *(0.305)*	13.97 *(2.75)*	36%
90.29 *(67.33)*	2127	9.02 *(34.15)*	0.701 *(0.426)*	10.01 *(1.97)*	Barometer
1.03 *(0.77)*	2155	5.52 *(19.26)*	37.710 *(22.938)*	0.20 *(0.04)*	28.98" Hg *(98.14 kPa)*

Maximum Torque -1598 lb.-ft. *(2166 Nm)* at 1100 rpm
Maximum Torque Rise - 51.7%
Torque rise at 1600 engine rpm - 42%

DRAWBAR PERFORMANCE (Unballasted)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—4th Gear									
371.35 *(276.92)*	32685 *(145.39)*	4.26 *(6.86)*	1998	4.08	0.412 *(0.251)*	17.03 *(3.36)*	187 *(86)*	56 *(13)*	29.03 *(98.31)*
75% of Pull at Maximum Power—4th Gear									
288.92 *(215.45)*	24447 *(108.75)*	4.43 *(7.13)*	2055	3.20	0.450 *(0.274)*	15.58 *(3.07)*	185 *(85)*	74 *(23)*	29.00 *(98.21)*
50% of Pull at Maximum Power—4th Gear									
197.96 *(147.62)*	16308 *(72.54)*	4.55 *(7.33)*	2087	1.94	0.511 *(0.311)*	13.73 *(2.70)*	181 *(83)*	73 *(23)*	29.00 *(98.21)*
75% of Pull at Reduced Engine Speed—7th Gear									
289.21 *(215.67)*	24452 *(108.77)*	4.44 *(7.14)*	1487	3.20	0.373 *(0.227)*	18.80 *(3.70)*	182 *(83)*	74 *(23)*	29.00 *(98.21)*
50% of Pull at Reduced Engine Speed—7th Gear									
198.22 *(147.81)*	16256 *(72.31)*	4.57 *(7.36)*	1516	1.94	0.397 *(0.242)*	17.67 *(3.48)*	180 *(82)*	73 *(23)*	29.00 *(98.21)*

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of Test: October 11 - 19, 2000

Manufacturer: Case Corporation, 700 State Street Racine, Wi. 53404 USA.

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8427 **Fuel weight** 7.017 lbs/gal *(0.841 kg/l)* **Oil SAE** 15W40 **API service classification** CH-4 **Transmission and hydraulic lubricant** Case Hy-Tran Ultra fluid **Front and rear axle lubricant** Case Hy-Tran Ultra fluid **Total time engine was operated** 29.5 hours

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.** 14008617 **Crankshaft** lengthwise **Rated engine speed** 2000 **Bore and stroke** 5.394" x 6.654" *(137.0 mm x 169.0 mm)* **Compression ratio** 16.5 to 1 **Displacement** 912 cu in *(14945 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** one paper element **Fuel cooler** radiator for returned fuel **Muffler** vertical **Cooling medium temperature control** one thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 141.6 - 156.1 lb/h *(64.2 -70.8 kg/h)* **High idle:** 2125 - 2165 rpm **Turbo boost:** nominal 21.2 - 24.1 psi *(146 - 166 kPa)* as measured 22.5 psi *(155 kPa)*

CHASSIS: Type four wheel drive with duals **Serial No.** *JEE0097535* **Tread width** rear 75.0" *(1905 mm)* to 129.0" *(3277 mm)* front 75.0" *(1905 mm)* to 129.0" *(3277 mm)* **Wheelbase** 154.0" *(3911 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 2.49 *(4.00)* second 3.00 *(4.82)* third 3.62 *(5.82)* fourth 4.36 *(7.01)* fifth 5.00 *(8.05)* sixth 5.50 *(8.85)* seventh 6.03 *(9.70)* eighth 6.62 *(10.65)* ninth 7.28 *(11.71)* tenth 8.00 *(12.87)* eleventh 8.77 *(14.11)* twelfth 9.63 *(15.50)* thirteenth 11.06 *(17.80)* fourteenth 13.31 *(21.43)* fifteenth 16.09 *(25.89)* sixteenth 19.37 *(31.17)* reverse 3.77 *(6.06)*, 8.33 *(13.40)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1998 engine rpm **Unladen tractor mass** 39325 lb *(17837 kg)*

DRAWBAR PERFORMANCE (Unballasted)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool-ing med	Air dry bulb	Barom. inch Hg (kPa)
					2nd Gear				
306.93 (228.88)	40035 (178.08)	2.87 (4.63)	2036	7.70	0.462 (0.281)	15.19 (2.99)	183 (84)	52 (11)	29.04 (98.34)
					3rd Gear				
359.86 (268.35)	39482 (175.62)	3.42 (5.50)	1999	7.46	0.420 (0.256)	16.70 (3.29)	186 (86)	54 (12)	29.04 (98.34)
					4th Gear				
397.55 (296.46)	38619 (171.79)	3.86 (6.21)	1855	6.47	0.392 (0.239)	17.89 (3.52)	187 (86)	57 (14)	29.03 (98.31)
					5th Gear				
408.80 (304.84)	37481 (166.72)	4.09 (6.58)	1701	5.80	0.392 (0.239)	17.88 (3.52)	189 (87)	58 (14)	29.03 (98.31)
					6th Gear				
414.48 (309.08)	34272 (152.45)	4.54 (7.30)	1698	4.95	0.384 (0.234)	18.26 (3.60)	190 (88)	63 (17)	29.03 (98.31)
					7th Gear				
411.15 (306.60)	30711 (136.61)	5.02 (8.08)	1701	4.08	0.387 (0.235)	18.14 (3.57)	192 (89)	65 (18)	29.03 (98.31)
					8th Gear				
413.87 (308.62)	28027 (124.67)	5.54 (8.91)	1697	3.47	0.382 (0.232)	18.36 (3.62)	190 (88)	70 (21)	29.03 (98.31)
					9th Gear				
409.22 (305.15)	25171 (111.97)	6.10 (9.81)	1693	3.29	0.389 (0.236)	18.06 (3.56)	193 (89)	71 (22)	29.03 (98.31)
					10th Gear				
413.66 (308.46)	23047 (102.52)	6.73 (10.83)	1695	2.84	0.387 (0.235)	18.15 (3.58)	192 (89)	72 (22)	29.03 (98.31)
					11th Gear				
403.23 (300.69)	20371 (90.61)	7.42 (11.95)	1700	2.48	0.396 (0.241)	17.74 (3.49)	193 (89)	73 (23)	29.01 (98.24)
					12th Gear				
416.01 (310.22)	19114 (85.02)	8.16 (13.14)	1698	2.30	0.386 (0.235)	18.16 (3.58)	189 (87)	73 (23)	29.01 (98.24)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

Note: This tractor has a driveline protection system that limits the maximum engine torque in gears 1 through 4.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The pull in 2nd gear (unballasted tractor) was limited to avoid excessive tractor bouncing. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 113°F *(45°C)*. The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

Report reissued: Supplemental sales permits for Case IH STX 450 Diesel and New Holland TJ 450 Diesel, January, 2002.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1784**, Nebraska Summary 336, January 8, 2002.

Brent T. sampson
Test Engineer

L.L. Bashford
M.F. Kocher
V.I. Adamchuk
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in 4th gear	78.2
Bystander in 16th gear	89.4

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Rear tires - No.,size, ply & psi*(kPa)*	Four 20.8R42; **;17 *(115)*	Four 20.8R42;**;15 *(105)*
Ballast - Liquid(total)	None	None
- Cast Iron(total)	3385 lb *(1535 kg)*	None
Front tires - No.,size, ply & psi*(kPa)*	Four 20.8R42; **;18 *(125)*	Four 20.8R42;**;16 *(110)*
Ballast - Liquid(total)	None	None
- Cast Iron(total)	1675 lb *(760 kg)*	None
Height of Drawbar	15.0 in *(380 mm)*	15.0 in *(380 mm)*
Static Weight with operator- Rear	19425 lb *(8811 kg)*	16690 lb *(7571 kg)*
- Front	25135 lb*(11401 kg)*	22810 lb *(10346 kg)*
- Total	44560 lb*(20212 kg)*	39500 lb *(17917 kg)*

DRAWBAR PERFORMANCE (Ballasted)

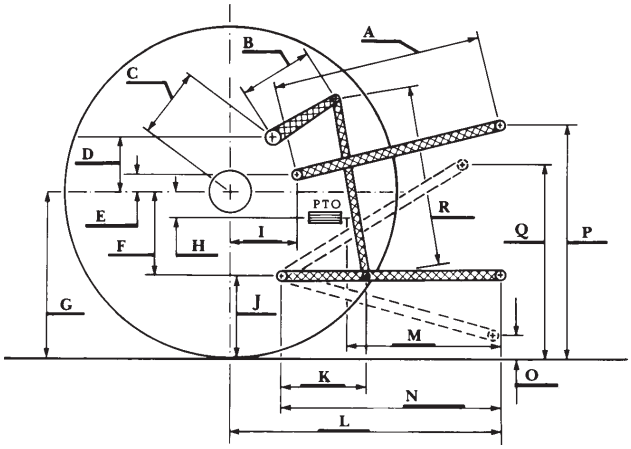
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Temp.°F*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
					3rd Gear				
346.55 *(258.42)*	44525 *(198.06)*	2.92 *(4.70)*	1705	7.30	0.387 *(0.236)*	18.12 *(3.57)*	186 *(86)*	60 *(16)*	28.99 *(98.17)*
					4th Gear				
408.41 *(304.55)*	41711 *(185.54)*	3.67 *(5.91)*	1754	5.47	0.390 *(0.237)*	17.98 *(3.54)*	190 *(88)*	63 *(17)*	28.99 *(98.17)*
					5th Gear				
409.84 *(305.62)*	37073 *(164.91)*	4.15 *(6.67)*	1703	4.61	0.389 *(0.237)*	18.02 *(3.55)*	191 *(88)*	65 *(18)*	28.98 *(98.14)*
					6th Gear				
413.45 *(308.31)*	33850 *(150.57)*	4.58 *(7.37)*	1703	4.00	0.386 *(0.235)*	18.17 *(3.58)*	192 *(89)*	67 *(19)*	28.97 *(98.10)*
					7th Gear				
409.51 *(305.37)*	30359 *(135.04)*	5.06 *(8.14)*	1705	3.48	0.387 *(0.236)*	18.11 *(3.57)*	192 *(89)*	68 *(20)*	28.97 *(98.10)*
					8th Gear				
414.72 *(309.25)*	27876 *(124.00)*	5.58 *(8.98)*	1705	3.21	0.382 *(0.232)*	18.36 *(3.62)*	192 *(89)*	69 *(21)*	28.97 *(98.10)*
					9th Gear				
409.72 *(305.53)*	25015 *(111.27)*	6.14 *(9.88)*	1701	2.85	0.393 *(0.239)*	17.87 *(3.52)*	193 *(89)*	70 *(21)*	28.96 *(98.07)*
					10th Gear				
413.58 *(308.41)*	22918 *(101.94)*	6.77 *(10.89)*	1701	2.40	0.385 *(0.234)*	18.21 *(3.59)*	189 *(87)*	74 *(23)*	28.96 *(98.07)*
					11th Gear				
405.44 *(302.34)*	20471 *(91.06)*	7.43 *(11.95)*	1698	2.31	0.397 *(0.241)*	17.69 *(3.49)*	194 *(90)*	76 *(24)*	28.96 *(98.07)*
					12th Gear				
414.84 *(309.34)*	18979 *(84.42)*	8.20 *(13.19)*	1703	1.95	0.388 *(0.236)*	18.08 *(3.56)*	193 *(89)*	78 *(26)*	28.95 *(98.04)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: IVN
Quick Attach: yes
Maximum Force Exerted
Through Whole Range: 19620 lbs *(87.3 kN)*

		High flow option
i) Opening pressure of relief valve:	NA	NA
Sustained pressure of the open relief valve:	2880 psi *(199 bar)*	2900 psi *(200 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	41.0 GPM *(155.2 l/min)*	55.2 GPM *(209.0 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	35.6 GPM *(134.8 l/min)*	51.4 GPM *(194.6 l/min)*
Delivery pressure:	2450 psi *(169 bar)*	2300 psi *(159 bar)*
Power:	50.9 HP *(37.9 kW)*	69.0 Hp *(51.4 kW)*



HITCH DIMENSIONS AS TESTED - NO LOAD

	inch	*mm*
A	32.6	*827*
B	29.9	*760*
C	23.2	*590*
D	22.0	*558*
E	13.5	*342*
F	13.4	*340*
G	38.2	*970*
H	6.4	*162*
I	22.8	*578*
J	24.8	*630*
K	29.0	*736*
L	56.3	*1431*
*L'	63.6	*1615*
M	34.3	*871*
N	46.5	*1181*
O	7.9	*200*
P	48.6	*1234*
Q	42.2	*1072*
R	39.8	*1010*

*L' to Quick Attach ends

Case IH STX 440 Diesel

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